REMARKS

Claims 1-27, 34-39, and 42-58 are pending. Claims 28-33, 40, and 41 have been cancelled. Claims 34-39 have been rewritten in independent form and slightly amended to be consistent with the specification. Claims 1, 4, 7-8, 11-14, 16-18, 20-22, 26, 34-39, 42, 45, 47-49, 52-54, and 57-58 have been amended. No new matter has been introduced. Reexamination and reconsideration of the application are respectfully requested.

As requested in the accompanying Power of Attorney, please direct future communications regarding this application to:

Roger R. Wise
Pillsbury Winthrop LLP
725 S. Figueroa Street, #2800
Los Angeles, CA 90017
Telephone: (213) 488-7100
Facsimile: (213) 629-1033

In the April 1, 2003 Office Action, the Examiner objected to claims 17-22 because of certain informalities. Claims 17-18 and 20-22 have been amended, claim 19 continues to depend from claim 17. The Examiner rejected claims 28-30 under 35 U.S.C. §102(b) as being anticipated by Tolman, U.S. Patent No. 4,458,113 (hereinafter the Tolman reference). The Examiner rejected claims 33, 40, and 41 under 35 U.S.C. §102(b) as being anticipated by Spies, U.S. Patent No. 4,996,484 (hereinafter the Spies reference). The Examiner rejected claims 1-3, 5- 6, 8-10, 13-14, 23-25, 42-44, 46-47, 49-51 and 54-56 under 35 U.S.C. §103(a) as being obvious over Tolman in view of Brown, U.S. Patent No. 6,317,613 B1 (hereinafter the Brown reference). The Examiner rejected claims 4, 11, 12, 26, 45, 52 and 57 under 35 U.S.C. §103(a) as being obvious over Tolman in view of Brown, as applied to claims 1, 8, 23, 42, 49 and 54, and further in view of Spies. The Examiner rejected claims

7, 16, 27, 48, 53 and 58 under 35 U.S.C. §103(a) as being obvious over Tolman in view of Brown, as applied to claims 1, 8, 23, 42, 49 and 54, and further in view of Fricke et al., U.S. Patent No. 4,381,488 (hereinafter the Fricke reference). The Examiner rejected claim 15 under 35 U.S.C. §103(a) as being obvious over Tolman in view of Brown, as applied to claim 8, and further in view of Stocklin, U.S. Patent No. 5,193,108 (hereinafter the Stocklin reference). The Examiner rejected claims 17-20 under 35 U.S.C. §103(a) as being obvious over Tolman and Spies in view of Brown. The Examiner rejected claim 21 under 35 U.S.C. §103(a) as being obvious over Tolman and Spies in view of Brown, as applied to claim 17, and further in view of Stocklin. The Examiner rejected claim 22 under 35 U.S.C. §103(a) as being obvious over Tolman and Spies in view of Brown, as applied to claim 17, and further in view of Fricke et al. The Examiner rejected claim 31 under 35 U.S.C. §103(a) as being obvious over Tolman in view of Spies. The Examiner rejected claim 32 under 35 U.S.C. §103(a) as being obvious over Tolman in view of Fricke et al. The Examiner rejected claims 34-39 under 35 U.S.C. §103(a) as being obvious over Spies in view of Brown. These rejections are respectfully traversed.

Amended independent claim 1 recites:

A method for detecting a desired signal in an electromagnetically noisy environment, the method comprising:

detecting electromagnetic signals comprising a noise signal and the desired signal;

compressing the detected electromagnetic signals to generate a compressed signal;

filtering the compressed signal to generate a filtered signal comprising substantially the desired signal; and

expanding the filtered signal to generate an expanded signal.

The Examiner rejected claims 1-3, 5-6, 8-10, 13-14, 23-25, 42-44, 46-47, 49-51 and 54-56 under 35 U.S.C. §103(a) as being obvious over Tolman in view of the Brown reference. In so doing, the Examiner stated "Tolman does not disclose compressing the **detected electromagnetic signals** to generate a compressed signal. Brown, Jr. discloses a method for detecting a signal comprising: **compressing the detected signals to generate a compressed signal** (column 4, lines 51-54)."

The Brown reference does not disclose, teach, or suggest the method in independent claim 1, as amended. Unlike the method in independent claim 1, the Brown reference does not show "detecting electromagnetic signals comprising a noise signal and the desired signal; compressing the detected electromagnetic signals to generate a compressed signal".

The Brown reference teaches the use of speech compression in communication systems, and the intelligibility of received speech signals in noisy environments. For example, the Brown reference states "System 50 includes a **transmit subsystem** and a receive subsystem. For this exemplary embodiment, system 50 can be an Advanced Mobile Phone System (AMPS). Preferably, the transmit subsystem forms part of a base station transmitter. The **transmit subsystem includes a compressor 52**, which **compresses the input audio signal from a microphone or similar analog audio or speech signal input device**." (Column 4, lines 51-54). FIG. 4 of Brown shows the transmit subsystem is **detecting speech or sound waves** by use of a microphone. Therefore, the detected signal is not an electromagnetic signal.

Moreover, even assuming that the Brown reference teaches "detecting electromagnetic signals", it is respectfully submitted that it would not have been obvious to one skilled in the art to combine the teachings of the Tolman reference and the Brown reference, as suggested by the Examiner. It is well settled that a reference must provide some motivation or reason for one skilled in the art (working without the benefit of applicant's specification) to make the necessary changes in the disclosed device. The mere fact that a reference may be modified in the direction of the claimed invention does not make the modification obvious unless the reference expressly or implicitly teaches or suggests the desirability of the modification. In re Kotzab, 55 U.S.P.Q.2d 1313, 1317-18 (Fed. Cir. 2000); In re Fitch, 23 U.S.P.Q.2d 1780, 1783 (Fed. Cir. 1992); In re Mills, 16 U.S.P.Q.2d 1430, 1432 (Fed. Cir. 1990).

The cited references, i.e., the Tolman and the Brown reference, fail to meet the basic requirement for a finding of obviousness established by the courts in Kotzab, Fitch, and Mills. There is no suggestion in either reference of modifying the circuit disclosed in the Tolman reference in the direction of the present application, nor is there any suggestion of the desirability of such modification.

The Brown reference does not show "detecting electromagnetic signals comprising a noise signal and the desired signal; compressing the detected electromagnetic signals to generate a compressed signal". Accordingly, the Applicants respectfully submit that independent claim 1, as amended, distinguishes over the above-cited references.

Claims 2-7 depend directly from independent claim 1, as amended. Therefore, Applicants respectfully submit that claims 2-7 distinguish over the above-cited references for the same reasons as set forth above with respect to

independent claim 1, as amended.

Amended independent claim 8 recites:

An apparatus for detecting a desired signal in electromagnetically noisy environments, the apparatus comprising:

an antenna configured to detect electromagnetic signals comprising a noise signal and the desired signal;

an electronic signal compressor electrically connected to the antenna and configured for **compressing the electromagnetic signals** to thereby generate a compressed signal;

a bandpass filter connected to the compressor for receiving the compressed signal from the compressor and configured for generating a filtered signal comprising substantially the desired signal; and

an electronic signal expandor connected to the bandpass filter and configured for expanding the filtered signal.

The Examiner rejected claims 8-10, 13, and 14, under 35 U.S.C. §103(a) as being obvious over Tolman in view of the Brown reference. In so doing, the Examiner stated "Tolman does not disclose an electronic signal compressor electrically connected to the antenna and configured for compressing the electromagnetic signals to thereby generate a compressed signal.
Brown, Jr. discloses an electronic signal compressor (fig. 4 (52)) **electrically connected to the antenna** and configured for **compressing the electromagnetic signals to thereby generate a compressed signal.**"

The Brown reference does not disclose, teach, or suggest the apparatus in independent claim 8, as amended. Unlike the apparatus in independent claim 8, as

amended, the Brown reference does not show "an antenna configured to detect electromagnetic signals comprising a noise signal and the desired signal; an electronic signal compressor electrically connected to the antenna and configured for compressing the electromagnetic signals to thereby generate a compressed signal".

The Brown reference states "System 50 includes a transmit subsystem and a receive subsystem. For this exemplary embodiment, system 50 can be an Advanced Mobile Phone System (AMPS). Preferably, the transmit subsystem forms part of a base station transmitter. The transmit subsystem includes a compressor 52, which compresses the input audio signal **from a microphone** or similar analog audio or speech signal input device." (Column 4, lines 51-54). FIG. 4 of Brown shows the transmit subsystem is detecting speech or sound waves by use of a microphone. Therefore, in Brown the electronic signal compressor is connected to a microphone, the detected signal is a sound wave and not an electromagnetic signal, and a microphone, and not an antenna, is used to detect the sound.

The Brown reference does not show "an antenna configured to detect electromagnetic signals comprising a noise signal and the desired signal; an electronic signal compressor electrically connected to the antenna and configured for compressing the electromagnetic signals to thereby generate a compressed signal". Accordingly, the Applicants respectfully submit that independent claim 8, as amended, distinguishes over the above-cited references.

Claims 9-16 depend directly from independent claim 8, as amended. Therefore, Applicants respectfully submit that claims 9-16 distinguish over the above-cited references for the same reasons as set forth above with respect to independent claim 8, as amended.

Independent claim 23 recites:

A method for detecting a desired signal in an electromagnetically noisy environment, the method comprising:

detecting electromagnetic signals comprising a noise signal and the desired signal;

compressing the detected electromagnetic signals to generate a compressed signal;

filtering the compressed signal to generate a filtered signal comprising substantially the desired signal.

The Examiner rejected claims 23-25 under 35 U.S.C. §103(a) as being obvious over Tolman in view of the Brown reference. In so doing, the Examiner stated "Tolman does not disclose compressing the detected electromagnetic signals to generate a compressed signal. Brown, Jr. discloses a method for detecting a signal comprising: compressing the detected signals to generate a compressed signal (column 4, lines 51-54)"

The Brown reference does not disclose, teach, or suggest the method in independent claim 23. Unlike the method in independent claim 23, the Brown reference does not show "detecting electromagnetic signals comprising a noise signal and the desired signal; compressing the detected electromagnetic signals to generate a compressed signal".

As stated above, FIG. 4 of Brown shows the transmit subsystem is detecting speech or sound waves by use of a microphone. Therefore, the detected signal in the Brown reference is not an electromagnetic signal.

The Brown reference does not show "detecting electromagnetic signals comprising a noise signal and the desired signal; compressing the detected

electromagnetic signals to generate a compressed signal". Accordingly, the Applicants respectfully submit that independent claim 23 distinguishes over the above-cited references.

Claims 24-25 depend directly from independent claim 23. Therefore, Applicants respectfully submit that claims 24-25 distinguish over the above-cited references for the same reasons as set forth above with respect to independent claim 23.

Amended independent claim 42 recites:

A method for detecting a desired signal in an electromagnetically noisy environment, the method comprising:

detecting an electromagnetic analog signal comprising a noise signal and the desired signal;

converting the electromagnetic analog signal into a digital signal;

compressing the digital signal using digital signal processing (DSP) to generate a compressed signal;

filtering the compressed signal using DSP to generate a filtered signal comprising substantially the desired signal;

expanding the filtered signal using DSP to generate an expanded digital signal; and

converting the expanded digital signal into an analog form.

The Examiner rejected claims 42-44, 46, and 47, under 35 U.S.C. §103(a) as being obvious over Tolman in view of the Brown reference. In so doing, the Examiner stated "Tolman does not disclose converting the electromagnetic analog signal into a digital signal; compressing the digital signal using digital signal processing (DSP) to generate a compressed signal; filtering the compressed signal

using DSP to generate a filtered signal comprising substantially the desired signal; expanding the filtered signal using DSP to generate an expanded digital signal; and converting the expanded digital signal to an analog signal. Brown, Jr. discloses converting the analog signal into a digital signal (column 5, lines 44-47); compressing the summed signal using digital signal processing (DSP) to generate a compressed signal (column 3, lines 57-63); filtering the compressed signal using DSP to generate a filtered signal comprising substantially the desired signal (column 5, lines 58-60); and expanding the filtered signal using DSP to generate an expanded digital signal (column 5, lines 17-23); and converting the expanded digital signal to an analog signal (column 6, lines 21-23). It should be noted that the DSP components as shown in fig. 5 could be used in the configuration of fig. 4, wherein the expander would also be included in the DSP before the signal is converted back to an analog signal to be output to the speaker".

The Brown reference does not disclose, teach, or suggest the method in independent claim 42, as amended. Unlike the method in independent claim 42, as amended, the Brown reference does not show "detecting an electromagnetic analog signal comprising a noise signal and the desired signal; converting the electomagnetic analog signal into a digital signal; compressing the digital signal using digital signal processing (DSP) to generate a compressed signal; filtering the compressed signal using DSP to generate a filtered signal comprising substantially the desired signal; expanding the filtered signal using DSP to generate an expanded digital signal".

The Applicants respectively bring to the Examiners attention that the Examiner is equating the embodiment of FIG. 4 with the embodiment of FIG. 5 of the Brown reference when in fact the two embodiments are dissimilar. FIG. 4 shows

analog signal processing while FIG. 5 shows digital signal processing. The Brown reference clearly differentiates the two. The Brown reference states "Conventional **analog** cellular mobile stations typically use 2:1 audio compression factors **for broadcast bandwidth reasons**. The base station's transmitter compresses the audio signal, and the mobile station's receiver expands the received audio signal in order to restore the dynamic range." (Column 3, line 64-column 4, line 1). Therefore, FIG 4 in Brown shows compression taking place in the transmit section. FIG 5 in Brown shows, for **digital** signal processing, A/D conversion taking place in the transmit section (for broadcast bandwidth reasons), whereas compression takes place in the receive section.

The Brown reference states "the transmit subsystem includes an analog to digital (A/D) converter 102, which functions to convert the input **analog speech signal from a microphone to a digital signal**. For a digital base station transmitter, the speech signal to be transmitted **is not compressed**. The (**uncompressed**) speech signal from the A/D converter 102 is passed through a filter section 104, which is typically a digital signal processor (DSP) that is used to filter digital audio signals. The filtered digital speech signal (uncompressed) is then upconverted to an RF signal in RF output section 106 and transmitted over the air interface" (Column 5, lines 44-54). FIG. 5 of Brown shows the transmit subsystem is detecting speech or sound waves by use of a microphone. Therefore, the detected signal in the Brown reference is not an electromagnetic analog signal. Furthermore, FIG. 5 of Brown shows the transmit subsystem **does not utilize a compressor**. Therefore, the speech signal to be transmitted **is not compressed**.

The Brown reference further states "The **receive subsystem** preferably forms part of a Digital Advanced Mobile Phone System (D-AMPS) (ETACS, etc.) digital mobile station receiver and includes a receive front end section 108, which functions to detect the received digital speech signal. The detected speech signal is passed through **a filter section 110 (typically a DSP used as a digital filter)**. At this point, in accordance with the present invention, the local background noise level is evaluated, and the **(uncompressed) filtered speech signal** from filter section 110 **is either compressed or maintained uncompressed** depending on the level of the local background noise" (Column 5, lines 58-62). In the receive subsystem of the Brown reference the **uncompressed** filtered speech signal **from filter section 110 is either compressed** or maintained uncompressed. FIG. 5 (digital signal processing) of Brown shows no expander. FIG. 4 (analog signal processing) of Brown shows an expander 62. However, the expander 62 of FIG. 4 expands an analog signal and not a digital signal. In addition, the analog signal was derived from speech or sound and not an electromagnetic signal. Therefore, the Brown reference does not show "**filtering the compressed signal** using DSP to generate a filtered signal comprising substantially the desired signal; **expanding the filtered signal using DSP** to generate an expanded digital signal"

The Brown reference does not show "detecting electromagnetic analog signal comprising a noise signal and the desired signal; converting the electomagnetic analog signal into a digital signal; compressing the digital signal using digital signal processing (DSP) to generate a compressed signal; filtering the compressed signal using DSP to generate a filtered signal comprising substantially the desired signal; expanding the filtered signal using DSP to generate an expanded

digital signal". Accordingly, the Applicants respectfully submit that independent claim 42, as amended, distinguishes over the above-cited references.

Claims 43-44, and 46-47 depend directly from independent claim 42, as amended. Therefore, Applicants respectfully submit that claims 43-44, and 46-47 distinguish over the above-cited references for the same reasons as set forth above with respect to independent claim 42, as amended.

Amended independent claim 49 recites:

A method for detecting a desired signal in an electromagnetically noisy environment, the method comprising:

detecting electromagnetic analog signals comprising a noise signal and the desired signal;

converting the electromagnetic analog signals into a digital signal;

compressing the digital signal using digital signal processing (DSP) to generate a compressed signal;

filtering the compressed signal using DSP to generate a filtered signal comprising substantially the desired signal.

The Examiner rejected claims 49-51 under 35 U.S.C. §103(a) as being obvious over Tolman in view of the Brown reference. In so doing, the Examiner stated "Tolman does not discloses converting the analog signal into a digital signal; compressing the digital signal using digital signal processing (DSP) to generate a compressed signal; filtering the compressed signal using DSP to generate a filtered signal comprising substantially the desired signal. Brown, Jr. discloses converting the analog signal into a digital signal (column 5, lines 44-47); compressing the summed signal using digital signal processing (DSP) to generate a compressed signal (column 3, lines 57-63); filtering the compressed signal using DSP to

generate a filtered signal comprising substantially the desired signal (column 5, lines 58-60). It should be noted that the DSP components as shown in fig. 5 could be used in the configuration of fig. 4." As stated above, the Applicants respectively bring to the Examiners attention that the Examiner is equating the embodiment of FIG. 4 with the embodiment of FIG. 5 of the Brown reference when in fact the two embodiments are dissimilar. FIG. 4 shows analog signal processing while FIG. 5 shows digital signal processing.

The Brown reference does not disclose, teach, or suggest the method in independent claim 49, as amended. Unlike the method in independent claim 42, as amended, the Brown reference does not show "detecting electromagnetic analog signal comprising a noise signal and the desired signal; converting the electomagnetic analog signals into a digital signal; compressing the digital signal using digital signal processing (DSP) to generate a compressed signal; filtering the compressed signal using DSP to generate a filtered signal comprising substantially the desired signal".

As discussed above, FIG. 5 of Brown shows the transmit subsystem is detecting speech or sound waves by use of a microphone. Therefore, the detected signal in the Brown reference is not an electromagnetic analog signal. Furthermore, FIG. 5 of Brown shows the transmit subsystem **does not utilize a compressor**. Therefore, the speech signal to be transmitted **is not compressed**. In the receive subsystem of the Brown reference the **uncompressed** filtered speech signal **from filter section 110 is either compressed** or maintained uncompressed. FIG. 5 of Brown shows no expander. FIG. 4 of Brown shows an expander 62. However, the expander 62 of FIG. 4 expands an analog signal and not a digital signal. In addition, the analog signal was derived from speech or sound and not an

electromagnetic signal. Therefore, the Brown reference does not show "**filtering the compressed signal** using DSP to generate a filtered signal comprising substantially the desired signal"

The Brown reference does not show "detecting electromagnetic analog signals comprising a noise signal and the desired signal; converting the electomagnetic analog signals into a digital signal; compressing the digital signal using digital signal processing (DSP) to generate a compressed signal; filtering the compressed signal using DSP to generate a filtered signal comprising substantially the desired signal". Accordingly, the Applicants respectfully submit that independent claim 49, as amended, distinguishes over the above-cited references.

Claims 50-53 depend directly from independent claim 49, as amended. Therefore, Applicants respectfully submit that claims 50-53 distinguish over the above-cited references for the same reasons as set forth above with respect to independent claim 49, as amended.

Amended independent claim 54 recites:

A method for detecting a desired signal in an electromagnetically noisy environment, the method comprising:

detecting electromagnetic analog signals comprising a noise signal and the desired signal;

converting the electromagnetic analog signals into a digital signal;

filtering the digital signal using digital signal processing (DSP) to generate a filtered signal comprising substantially the desired signal; and

expanding the filtered signal using DSP.

The Examiner rejected claims 54-56 under 35 U.S.C. §103(a) as being obvious over Tolman in view of the Brown reference. In so doing, the Examiner stated "Tolman does not disclose converting the analog signal into a digital signal; filtering the digital signal using digital signal processing (DSP) to generate a filtered signal comprising substantially the desired signal; and expanding the filtered signal using DSP. Brown, Jr. discloses converting the analog signal into a digital signal (column 5, lines 44-47); filtering the digital signal using digital signal processing (DSP) to generate a filtered signal comprising substantially the desired signal (column 5, lines 58-60); and expanding the filtered signal using DSP. It should be noted that the DSP components as shown in fig. 5 could be used in the configuration of fig. 4, wherein the expander would also be included in the DSP before the signal is converted back to an analog signal to be output to the speaker."

As stated above, the Applicants respectively bring to the Examiners attention that the Examiner is equating the embodiment of FIG. 4 with the embodiment of FIG. 5 of the Brown reference, when in fact the two embodiments are dissimilar. FIG. 4 shows analog signal processing while FIG. 5 shows digital signal processing.

The Brown reference does not disclose, teach, or suggest the method in independent claim 54, as amended. Unlike the method in independent claim 54, as amended, the Brown reference does not show "detecting electromagnetic analog signals comprising a noise signal and the desired signal; **converting the electromagnetic analog signals into a digital signal**; filtering the digital signal using digital signal processing (DSP) to generate a filtered signal comprising substantially the desired signal; and **expanding the filtered signal using DSP**".

As discussed above, FIG. 5 of Brown shows the transmit subsystem is detecting speech or sound waves by use of a microphone. Therefore, the detected

signal in the Brown reference is not an electromagnetic analog signal. Furthermore, FIG. 5 of Brown shows the transmit subsystem **does not utilize a compressor**. Therefore, the speech signal to be transmitted **is not compressed**. In the receive subsystem of the Brown reference the **uncompressed** filtered speech signal **from filter section 110 is either compressed** or maintained uncompressed. FIG. 5 of Brown shows no expander. FIG. 4 of Brown shows an expander 62. However, the expander 62 of FIG. 4 expands a compressed analog signal and not a digital signal. In addition, the analog signal was derived from speech or sound and not an electromagnetic signal. Therefore, the Brown reference does not show "converting the electromagnetic analog signals into a digital signal; **filtering the digital signal** using digital signal processing (DSP) to generate a filtered signal comprising substantially the desired signal; and **expanding the filtered signal** using DSP."

The Brown reference does not show "detecting electromagnetic analog signals comprising a noise signal and the desired signal; converting the electromagnetic analog signals into a digital signal; compressing the digital signal using digital signal processing (DSP) to generate a compressed signal; filtering the compressed signal using DSP to generate a filtered signal comprising substantially the desired signal". Accordingly, the Applicants respectfully submit that independent claim 54, as amended, distinguishes over the above-cited references.

Claims 55-58 depend directly from independent claim 54, as amended. Therefore, Applicants respectfully submit that claims 55-58 distinguish over the above-cited references for the same reasons as set forth above with respect to independent claim 54, as amended.

The Examiner rejected claims 4, 11, 12, 26, 45, 52 and 57 under 35 U.S.C. §103(a) as being obvious over Tolman in view of Brown, as applied to claims 1, 8, 23, 42, 49 and 54 above, and further in view of Spies.

For the reasons stated above, independent claims 1, 8, 23, 42, 49 and 54 distinguish over Tolman in view of Brown. The Spies reference does not make up for the deficiencies of the Tolman reference and the Brown reference. Specifically, the Spies reference does not teach "detecting electromagnetic signals comprising a noise signal and the desired signal; compressing the detected electromagnetic signals to generate a compressed signal". Claims 4, 11, 12, 26, 45, 52 and 57 depend directly from independent claims 1, 8, 23, 42, 49 and 54, respectively. Accordingly, the Applicants respectfully submit that claims 4, 11, 12, 26, 45, 52 and 57 distinguish over the above-cited references.

The Examiner rejected claims 7, 16, 27, 48, 53 and 58 under 35 U.S.C. §103(a) as being obvious over Tolman in view of Brown, as applied to claims 1, 8, 23, 42, 49 and 54 above, and further in view of the Fricke reference. For the reasons stated above, independent claims 1, 8, 23, 42, 49 and 54 distinguish over Tolman in view of Brown. The Fricke reference does not make up for the deficiencies of the Tolman reference and the Brown reference. Specifically, the Fricke reference does not teach "detecting electromagnetic signals comprising a noise signal and the desired signal; compressing the detected electromagnetic signals to generate a compressed signal". Claims 7, 16, 27, 48, 53 and 58 depend directly from independent claims 1, 8, 23, 42, 49 and 54, respectively. Accordingly, Applicants respectfully submit that claims 7, 16, 27, 48, 53 and 58 distinguish over the above-cited references.

The Examiner rejected claim 15 under 35 U.S.C. §103(a) as being obvious over Tolman in view of Brown, as applied to claim 8 above, and further in view of the Stocklin reference. For the reasons stated above, claim 8 distinguishes over Tolman in view of Brown. The Stocklin reference does not make up for the deficiencies of the Tolman reference and the Spies reference. Specifically, the Stocklin reference does not show "an antenna configured to detect electromagnetic signals comprising a noise signal and the desired signal; an electronic signal compressor electrically connected to the antenna and configured for compressing the electromagnetic signals to thereby generate a compressed signal". Claim 15 depends from independent claim 8. Accordingly, Applicants respectfully submit that claim 15 distinguishes over the above-cited references.

Amended independent claim 17 recites:

An apparatus for detecting a known signal in an electromagnetically noisy environment, the apparatus comprising:

a probe antenna configured to detect electromagnetic signals comprising a noise signal and the known signal;

a noise canceling antenna configured for detecting electromagnetic signals comprising substantially the noise signal;

an amplifier connected to the probe antenna and the noise canceling antenna, the amplifier being configured for **inverting the noise signal detected by the noise canceling antenna, and outputting an amplified signal comprising the sum of the inverted noise signal and the known signal detected by the probe antenna**;

an electronic signal compressor electrically connected to the amplifier for receiving the amplified signal, and configured for compressing the amplified signal to thereby generate a compressed signal;

a bandpass filter connected to the electronic signal compressor for receiving the compressed signal from the electronic signal compressor and for substantially filtering out the noise signal and outputting a filtered signal comprising substantially the known signal and insubstantially the noise signal;

an electronic signal expandor connected to the bandpass filter and configured for receiving the filtered signal and generating an expanded signal comprising substantially the known signal amplified and attenuating substantially the noise signal of the filtered signal; and

a speaker connected to the electronic signal expandor for generating an audible sound indicative of the expanded signal.

The Examiner rejected claims 17-20 under 35 U.S.C. §103(a) as being obvious over Tolman and Spies in view of Brown. In so doing, the Examiner stated "**Tolman** does not disclose a noise canceling antenna configured for detecting electromagnetic signals comprising substantially the noise signal; an amplifier connected to the probe antenna and noise canceling antenna, the amplifier being configured for inverting the signal detected by the noise canceling antenna, and outputting an amplified signal comprising the sum of the inverted signal and the signal detected by the probe antenna; or an electronic signal compressor electrically connected to the amplifier for receiving the amplified signal, and configured for compressing the amplified signal to thereby generate a compressed signal. **Spies** discloses a noise canceling antenna (fig. 1 (25)) configured for detecting electromagnetic signals comprising substantially the noise signal; an amplifier (fig. 1

(29)) connected to the probe antenna and noise canceling antenna, the amplifier being configured for inverting the signal detected by the noise canceling antenna, and outputting an amplified signal comprising the sum of the inverted signal and the signal detected by the probe antenna (column 5, lines 22-34). **Brown**, Jr. discloses an electronic signal compressor (fig. 4 (52)) electrically connected to the amplifier for receiving the amplified signal, and configured for compressing the amplified signal to thereby generate a compressed signal."

The Spies reference does not disclose, teach, or suggest the apparatus in independent claim 17, as amended. Unlike the apparatus in independent claim 17, the Spies reference does not show "**a noise canceling antenna** configured for detecting electromagnetic signals comprising substantially the noise signal; **an amplifier connected to the probe antenna and the noise canceling antenna**, the amplifier being configured for **inverting the noise signal detected by the noise canceling antenna, and outputting an amplified signal comprising the sum of the inverted noise signal and the known signal detected by the probe antenna**".

The Spies reference makes no mention whatsoever of "**an amplifier connected to the probe antenna and the noise canceling antenna**, the amplifier being configured for **inverting the noise signal detected by the noise canceling antenna, and outputting an amplified signal comprising the sum of the inverted noise signal and the known signal detected by the probe antenna**". The Spies reference states "the cancelling antenna 31 produces an electromagnetic field that is equal in amplitude and 180 degrees out of phase to the ambient powerline noise electromagnetic field, as seen by the magnetometer 13." (Column

4, lines 56-61). Essentially, the Spies reference teaches the cancellation of the noise signal by the magnetometer 13.

The Spies reference does not show "a noise canceling antenna configured for detecting electromagnetic signals comprising substantially the noise signal; an amplifier connected to the probe antenna and the noise canceling antenna, the amplifier being configured for inverting the noise signal detected by the noise canceling antenna, and outputting an amplified signal comprising the sum of the inverted noise signal and the known signal detected by the probe antenna". Accordingly, the Applicants respectfully submit that independent claim 17, as amended, distinguishes over the above-cited references.

Claims 18-20 depend directly from independent claim 17, as amended. Therefore, Applicants respectfully submit that claims 18-20 distinguish over the above-cited references for the same reasons as set forth above with respect to independent claim 17, as amended.

The Examiner rejected claim 21 under 35 U.S.C. §103(a) as being obvious over Tolman and Spies in view of Brown, as applied to claim 17 above, and further in view of Stocklin. For the reasons stated above, independent claim 17, as amended, distinguishes over Tolman in view of Spies. The Stocklin reference does not make up for the deficiencies of the Tolman reference and the Spies reference. Specifically, the Stocklin reference does not show" a noise canceling antenna configured for detecting electromagnetic signals comprising substantially the noise signal; an amplifier connected to the probe antenna and the noise canceling antenna, the amplifier being configured for inverting the noise signal detected by the noise canceling antenna, and outputting an amplified signal comprising the sum of the inverted noise signal and the known signal detected by the probe antenna"

Accordingly, the Applicants respectfully submit that dependent claim 21 distinguishes over the above-cited references.

The Examiner rejected claim 22 under 35 U.S.C. §103(a) as being obvious over Tolman and Spies in view of Brown, as applied to claim 17 above, and further in view of Fricke et al. For the reasons stated above, independent claim 17, as amended, distinguishes over Tolman in view of Spies. The Fricke reference does not make up for the deficiencies of the Tolman reference and the Spies reference. Specifically, the Fricke reference does not show "a noise canceling antenna configured for detecting electromagnetic signals comprising substantially the noise signal; an amplifier connected to the probe antenna and the noise canceling antenna, the amplifier being configured for inverting the noise signal detected by the noise canceling antenna, and outputting an amplified signal comprising the sum of the inverted noise signal and the known signal detected by the probe antenna". Accordingly, the Applicants respectfully submit that dependent claim 22 distinguishes over the above-cited references.

The Examiner rejected claims 28-30 under 35 U.S.C. §102(b) as being anticipated by Tolman, U.S. Patent No. 4,458,113 (hereinafter the Tolman reference). Claims 28-30 have been cancelled.

The Examiner rejected claim 31 under 35 U.S.C. §103(a) as being obvious over Tolman in view of Spies. Claim 31 has been cancelled. The Examiner rejected claim 32 under 35 U.S.C. §103(a) as being obvious over Tolman in view of Fricke et al. Claim 32 has been cancelled.

The Examiner rejected claims 33, 40, and 41 under 35 U.S.C. §102(b) as being anticipated by Spies, U.S. Patent No. 4,996,484 (hereinafter the Spies reference). Claims 33, 40, and 41 have been cancelled.

Claim 34 rewritten in independent form recites:

A method for detecting a desired signal in an electromagnetically noisy environment, the method comprising:

detecting with a first antenna electromagnetic signals comprising a noise signal and the desired signal;

detecting with a second antenna electromagnetic signals comprising substantially the noise signal; and

inverting the noise signal detected by the second antenna, and summing the inverted noise signal to the desired signal detected by the first antenna to generate a summed signal;

compressing the summed signal to generate a compressed signal;

filtering the compressed signal to generate a filtered signal comprising substantially the desired signal; and

expanding the filtered signal.

The Examiner rejected claims 34-39 under 35 U.S.C. §103(a) as being obvious over Spies in view of Brown. Applicants have slightly amended and rewritten claims 34-39 in independent form. In rejecting claim 34, the Examiner stated "referring to claim 34, Spies discloses the method as claimed except for compressing the summed signal to generate a compressed signal; filtering the compressed signal to generate a filtered signal comprising substantially the desired signal; and expanding the filtered signal. Brown, Jr. discloses **compressing the summed signal** to generate a compressed signal (column 4, lines 51-54); filtering the compressed signal to generate a filtered signal comprising substantially the desired signal (column 4, lines 55-57); and expanding the filtered signal (column 5, lines 17-23)."

The Brown reference does not show "inverting the noise signal detected by the second antenna, **and summing** the inverted noise signal to the desired signal detected by the first antenna to generate a summed signal; **compressing the summed signal to generate a compressed signal**". Accordingly, the Applicants respectfully submit that rewritten independent claim 34 distinguishes over the above-cited references.

Claims 35-39 recite limitations similar to rewritten independent claim 34. Therefore, Applicants respectfully submit that claims 35-39 distinguish over the above-cited references for the same reasons as set forth above with respect to rewritten independent claim 34.

///

///

///

///

///

///

///

///

///

///

///

///

///

///

///

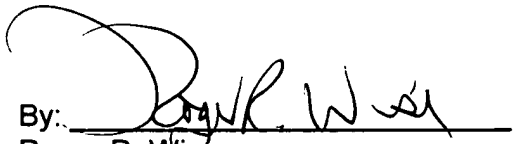
Applicants believe that the foregoing amendment and remarks place the application in condition for allowance, and a favorable action is respectfully requested.

If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at the Los Angeles telephone number (213) 488-7100 to discuss the steps necessary for placing the application in condition for allowance should the examiner believe that such a telephone conference would advance prosecution of the application.

Respectfully submitted,

PILLSBURY WINTHROP LLP

Date: September 30, 2003

By: 
Roger R. Wise
Registration No. 31,204

725 South Figueroa Street, Suite 2800
Los Angeles, CA 90017-5406
Telephone: (213) 488-7100
Facsimile: (213) 629-1033